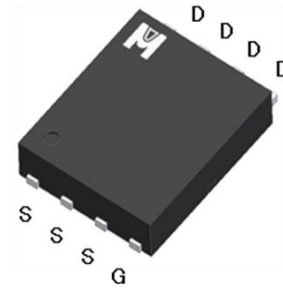
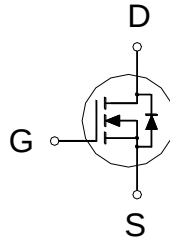




N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	30V
R _{DS(on)} (MAX.)	9.5mΩ
I _D	50A



UIS, R_g 100% Tested

RoHS & Halogen Free & TSCA Compliant

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C Unless Otherwise Noted)



PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	50	A
	T _C = 100 °C		35	
Pulsed Drain Current ¹		I _{DM}	140	
Avalanche Current		I _{AS}	37.5	
Avalanche Energy	L = 0.1mH, I _D =37.5A, R _G =25Ω	E _{AS}	70	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	15	
Power Dissipation	T _C = 25 °C	P _D	50	W
	T _C = 100 °C		26	
Operating Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C

100% UIS testing in condition of V_D=25V, L=0.1mH, V_G=10V, I_L=22A, Rated V_{DS}=30V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R _{θJC}		2.5	°C / W
Junction-to-Ambient ³	R _{θJA}		50	

¹Pulse width limited by maximum junction temperature.

²Duty cycle < 1%

³The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz.

Copper, in a still air environment with T_A =25°C.

⁴Guarantee by Engineering test



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.7	3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
		V _{DS} = 20V, V _{GS} = 0V, T _J = 125 °C			25	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	50			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 25A		8	9.5	mΩ
		V _{GS} = 4.5V, I _D = 15A		11.5	14	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 20A		20		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		992		pF
Output Capacitance	C _{oss}			147		
Reverse Transfer Capacitance	C _{rss}			91		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		1.7		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =10V)	V _{DS} = 15V, V _{GS} = 10V, I _D = 25A		17.8		nC
	Q _g (V _{GS} =4.5V)			9.2		
Gate-Source Charge ^{1,2}	Q _{gs}			1.6		
Gate-Drain Charge ^{1,2}	Q _{gd}			4.8		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{DS} = 15V, I _D = 5A, V _{GS} = 10V, R _G = 3Ω		8		nS
Rise Time ^{1,2}	t _r			10		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			20		
Fall Time ^{1,2}	t _f			12		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				50	A
Pulsed Current ³	I _{SM}				140	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		22		nS
Peak Reverse Recovery Current	I _{RM(REC)}			180		A
Reverse Recovery Charge	Q _{rr}			12		nC



杰力科技股份有限公司
Excelliance MOS Corporation

EMB09N03HR

¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB09N03HR for EDFN 5 x 6



→ B09N03R: Device Name

→ ABCDEFG: Date Code

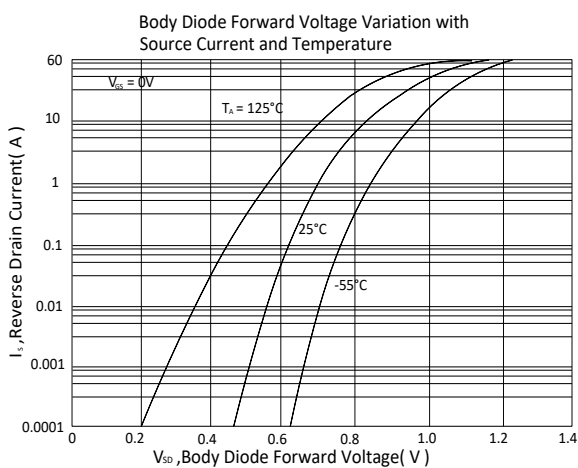
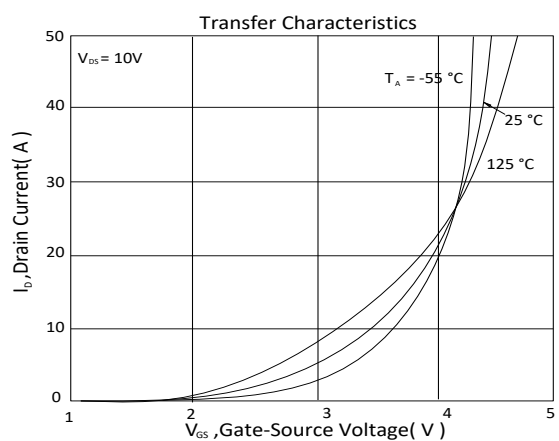
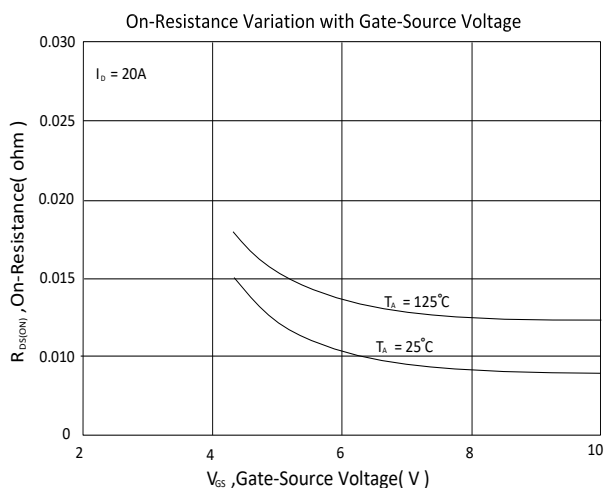
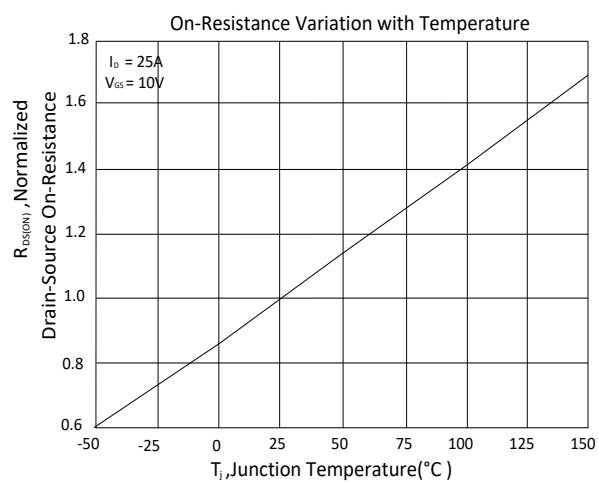
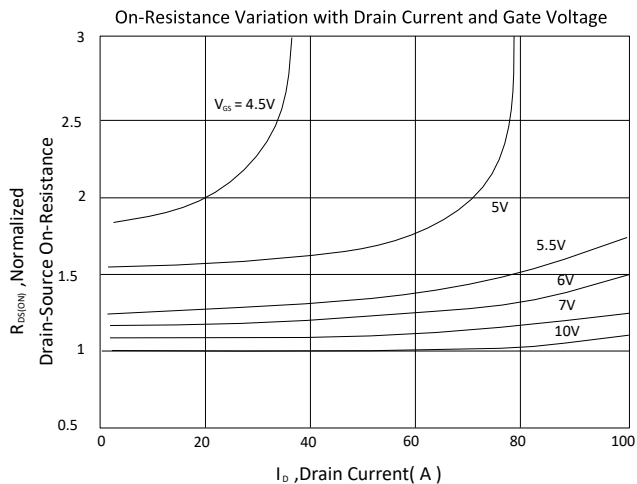
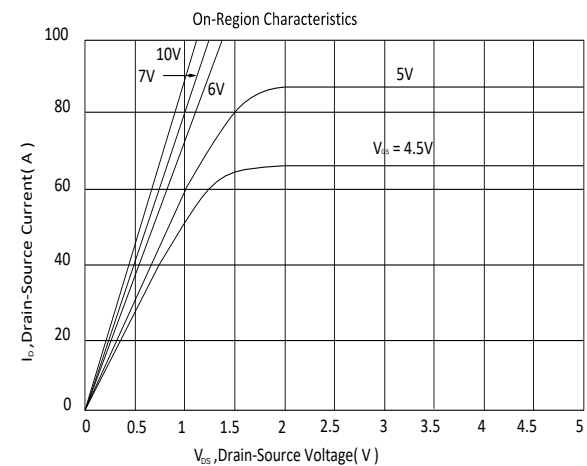
A: Assembly House

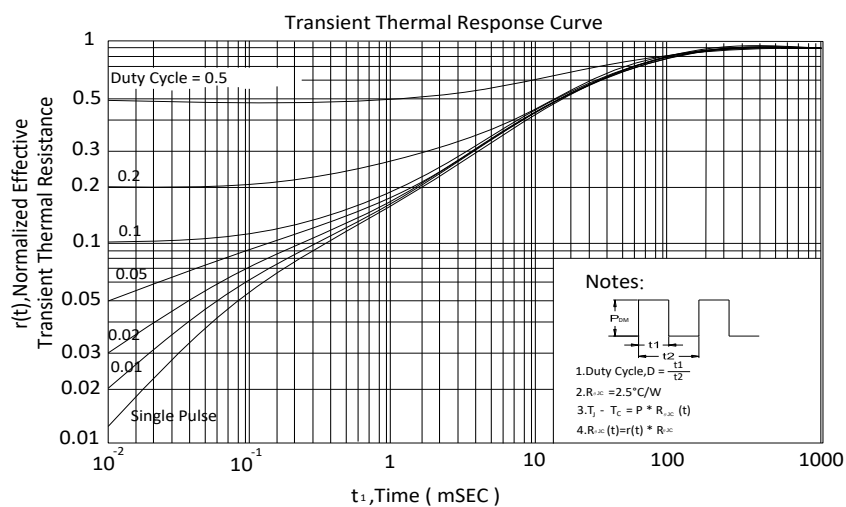
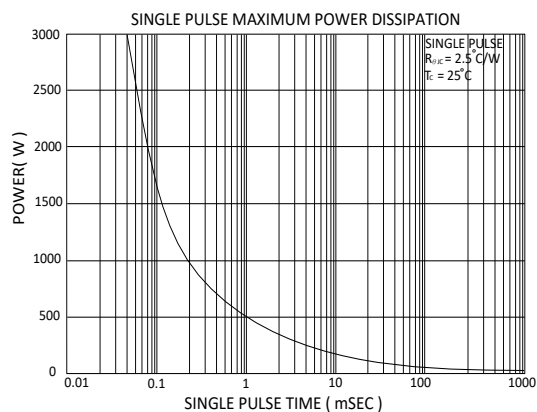
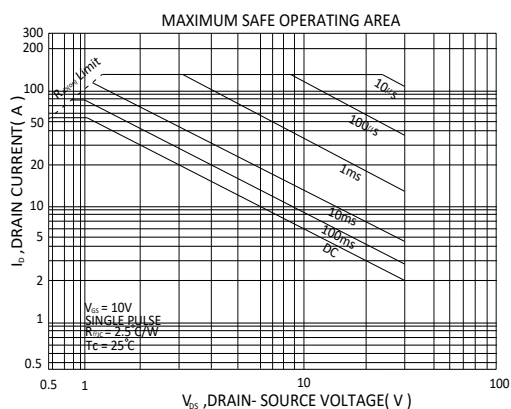
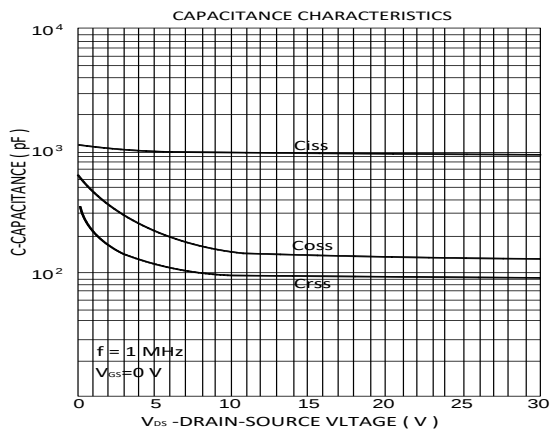
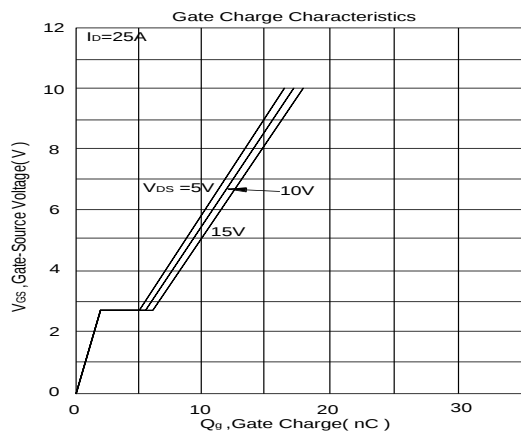
B: Year(A:2008 B:2009 C:2010....)

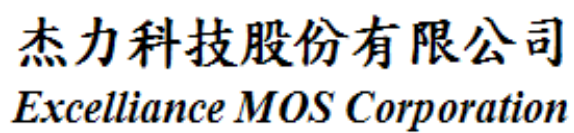
C: Month(A:01 B:02 C:03 D:04 E:05 F:06 G:07 H:08 I:09 J:10 K:11 L:12)

DEFG: Serial No.

TYPICAL CHARACTERISTICS







Technical drawing of a rectangular box with dimensions and labels:

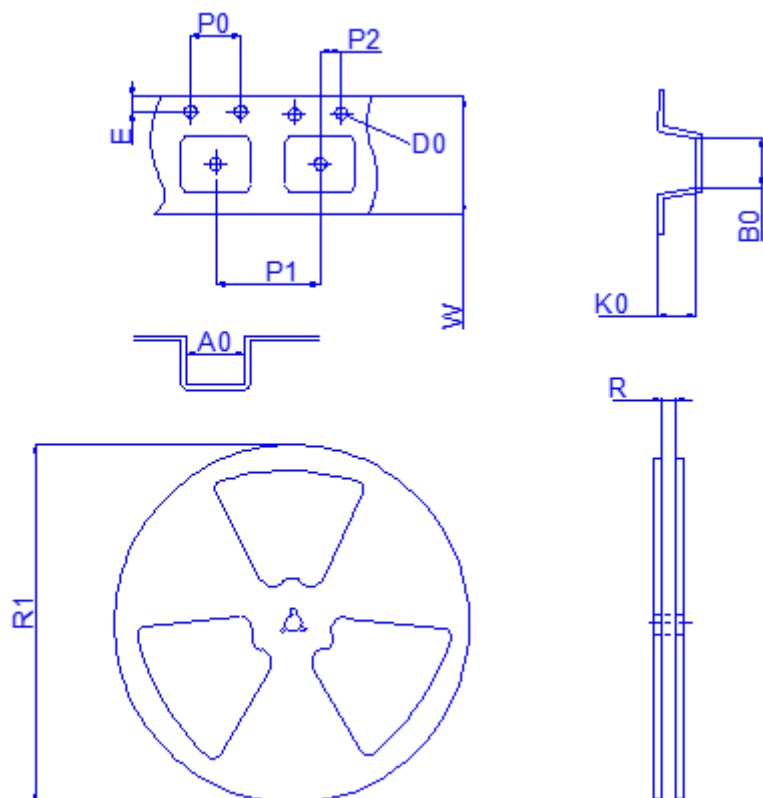
- Top View:** Shows the box from above. Dimensions include H (height), J (width), K (top flange width), L (bottom flange width), and D (bottom flange thickness).
- Front View:** Shows the box from the front. Dimensions include E (height) and F (height).
- Side View:** Shows the box from the side. Dimensions include G (width), B (width), and C (width).
- Detail View:** A close-up of the top flange showing a curved profile with a radius M and a vertical dimension A .

Dimension	A	B	C	D	E	F	G	H	J	K	L	M
Min	4.8	5.55	5.9	0.3	1.17	0.85	0.15	3.61	3.18	1	0.38	0°
Typ.	4.9	5.7	6	0.4	1.27	0.95	0.2	3.87	3.44	1.2	0.4	
Max	5.4	5.85	6.15	0.51	1.37	1.17	0.34	4.31	3.78	1.39	0.71	12°

Technical drawing of a stepped block. The top view shows a rectangular base with a width of 4.42 and a depth of 6.61. The front view shows a block with a total height of 6.61. The top surface is stepped, with a central section that is 1.02 units high and 4.42 units wide. The side view shows a block with a total height of 6.61 and a width of 1.27. The top surface is stepped, with a central section that is 1.02 units high and 1.27 units wide. The bottom view shows a rectangular base with a width of 4.42 and a depth of 6.61. The front view shows a block with a total height of 6.61. The top surface is stepped, with a central section that is 1.02 units high and 4.42 units wide. The side view shows a block with a total height of 6.61 and a width of 1.27. The top surface is stepped, with a central section that is 1.02 units high and 1.27 units wide.



Tape&Reel Information:2500pcs/Reel



Package	EDFN5X6
Reel	13"
Device orientation	FEED DIRECTION

Dimension in mm

Dimension	Carrier tape									Reel	
	A0	B0	D0	E	K0	P0	P1	P2	W	R	R1
Typ.	6.4	5.3	1.5	1.8	1.6	4	8	2	12	12.4	330
±	0.2	0.2	0.1	0.1	0.6	0.1	0.1	0.1	0.3	2	2